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The Commissioner of
Patents and Trademarks

Has received an application for a patent for a new and useful invention. The title and description of the invention are enclosed. The requirements of law have been complied with, and it has been determined that a patent on the invention shall be granted under the law.

Therefore, this

United States Patent

Grants to the person(s) having title to this patent the right to exclude others from making, using, offering for sale, or selling the invention throughout the United States of America or importing the invention into the United States of America for the term set forth below, subject to the payment of maintenance fees as provided by law.

If this application was filed prior to June 8, 1995, the term of this patent is the longer of seventeen years from the date of grant of this patent or twenty years from the earliest effective U.S. filing date of the application, subject to any statutory extension.

If this application was filed on or after June 8, 1995, the term of this patent is twenty years from the U.S. filing date, subject to any statutory extension. If the application contains a specific reference to an earlier filed application or applications under 35 U.S.C. 120, 121 or 365(c), the term of the patent is twenty years from the date on which the earliest application was filed, subject to any statutory extension.

T. Todd Pichini

Acting Commissioner of Patents and Trademarks

Sharna H. Cooper
Attest



Zhao

[11] Patent Number: 5,970,976

[45] **Date of Patent:** Oct. 26, 1999

- [54] APPARATUS AND METHOD FOR GENERATING PRESSURE CHANGES IN A MAMMALIAN ORAL/THROAT CAVITY

5,803,066	9/1998	Rapoport et al.	128/204.23
5,873,361	2/1999	Hakala	128/204.23
5,875,777	3/1999	Eriksson	128/204.21

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[21] Appl. No.: 09/052,569

[22] Filed: Mar. 31, 1998

[57] **ABSTRACT**

[51] Int. Cl.⁶ A61M 16/00

[52] U.S. Cl. 128/204.23; 128/204.21;
600/529

[58] **Field of Search** 128/204.23, 204.21,
128/204.22, 200.24, 202.16, 205.19, 848;
600/529, 543

[56] **References Cited**

U.S. PATENT DOCUMENTS

5,632,281 5/1997 Rayburn 128/719

Predetermined pressure changes in the oral and throat cavity is achieved by inducing at least a partial vacuum in the mouth and throat area of a mammal in temporal coordination with the mammal's breathing pattern. The partial vacuum is selectively applied to the mouth and throat cavity only during inhalation cycles of the breathing pattern. A further aspect of the invention provides for additionally inducing a positive or atmospheric pressure in the mouth and throat cavity only during exhalation cycles of the breathing pattern.

12 Claims, 3 Drawing Sheets

